VIDEO GAME DEVELOPMENT USING UNITY (FPS)

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CAPTAIN-G

Captain-G is a 3D First-Person Shooter(FPS) game developed with Unity Engine. First-person shooter (FPS) is a sub-genre of shooter video games centered on guns and other weapon-based combat in a first-person perspective, with the player experiencing the action through the eyes of the protagonist and controlling the player character in a three-dimensional space. The genre shares common traits with other shooter games. Shooter video games or shooters are a sub-genre of action video games where the focus is almost entirely on the defeat of the character's enemies using the weapons given to the player.

MODULES

MODULE 1: PROTOTYPE

A sample scene with templates describing the main theme or story of the game.

The scene will contain:

- Main character (Hero) and weapons
- World or terrain
- Enemies
- Other game objects

MODULE 2: DESIGN

- Terrain and World Design
- Character design and customizations
- Weapon design and modifications
- Level design

MODULE 3: GAME MECHANICS

- Player movement and actions
- Game physics
- Key bindings and game controls

MODULE 4: GAME AI

- Enemy behavior
- Combat AI
- Player recognition
- Hunting

MODULE 5: UI

- User interfaces for
  - Game Launch Screen
  - Main Menu
  - Pause Menu
  - Mini Map
  - Player Health
  - Point count
  - Ammo count
  - Weapon Selection

METHODOLOGY

This video game is entirely built using Unity game engine. Unity is a cross-platform game engine developed by Unity Technologies. The engine can be used to create three-dimensional (3D) and two-dimensional (2D) games, as well as interactive simulations and other experiences. The engine has been adopted by industries outside video gaming, such as film, automotive, architecture, engineering, construction, and the United States Armed Forces.

Unity gives users the ability to create games and experiences in both 2D and 3D, and the engine offers a primary scripting API in C#, for both the Unity editor in the form of plugins, and games themselves, as well as drag and drop functionality. For 3D games, Unity allows specification of texture compression, mipmaps, and resolution settings for each platform that the game engine supports, and provides support for bump mapping, reflection mapping, parallax mapping, screen space ambient occlusion (SSAO), dynamic shadows using shadow maps, render-to-texture and full-screen post-processing effects.

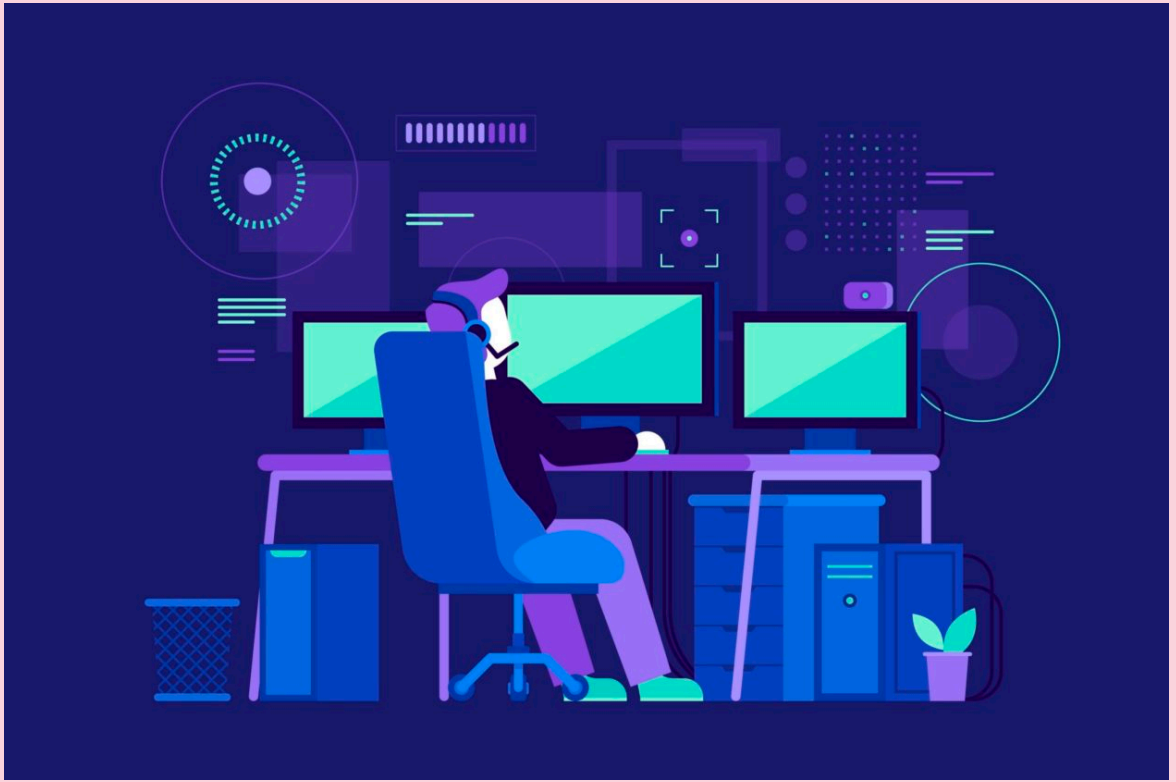
The level is designed by using ProGrids in unity. ProGrids is an essential tool that is used to help place objects with ease and precision.

We can add game objectives in unity easily. The objective system works simply by adding GameObjects with an Objective component on them coupled with a specific component like "ObjectiveKillEnemies" or "ObjectiveReachPoint".

FUTURE ENHANCEMENTS

- Improved graphics
- Smoother movement and more responsive game controls
- Improved frame per second
- An entertaining story mode
- Multiplayer mod
- Improved and solid level design and world design
- More balanced challenge and reward
- Cross Platform multiplayer

DEVELOPING ENVIRONMENT



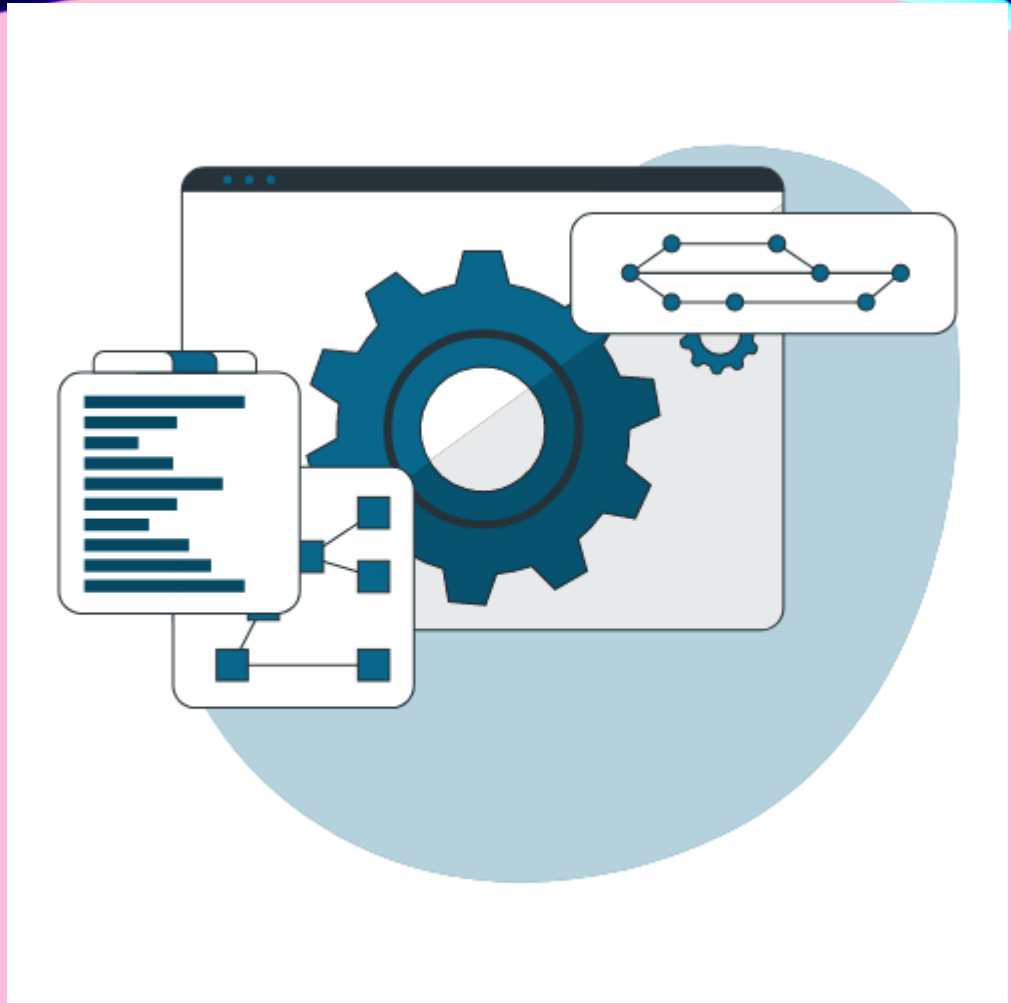
➢Hardware Requirements

- Processor - Intel Core i5 (min)
- Speed - 1.5 GHz (min)
- RAM - 4 GB (min)
- Hard Disk - 50 GB or (min)
- GPU - 1 GB (min)

➢Software Requirements

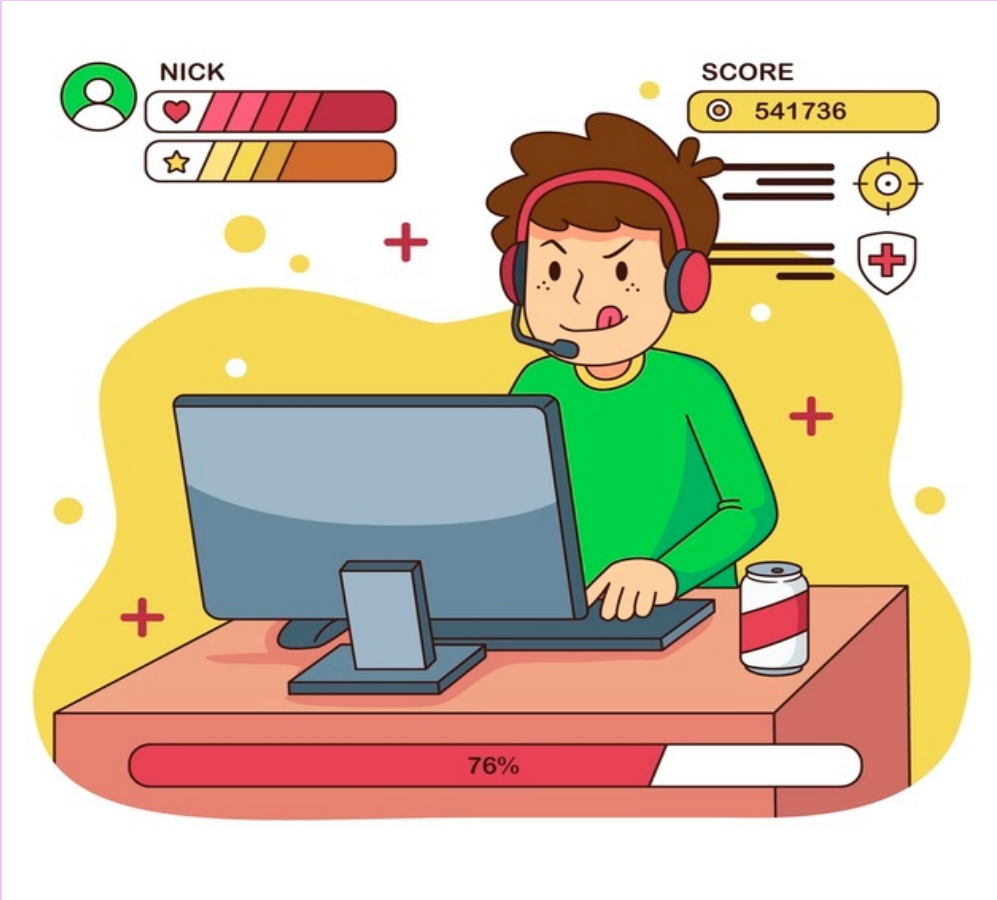
- Operating System - Windows 10
- Game Engine - Unity
- Programming Language - C#
- SFX - Audacity
- Modeling - Blender (if necessary)
- Texturing - Photoshop (if necessary)

PRODUCT BACKLOG



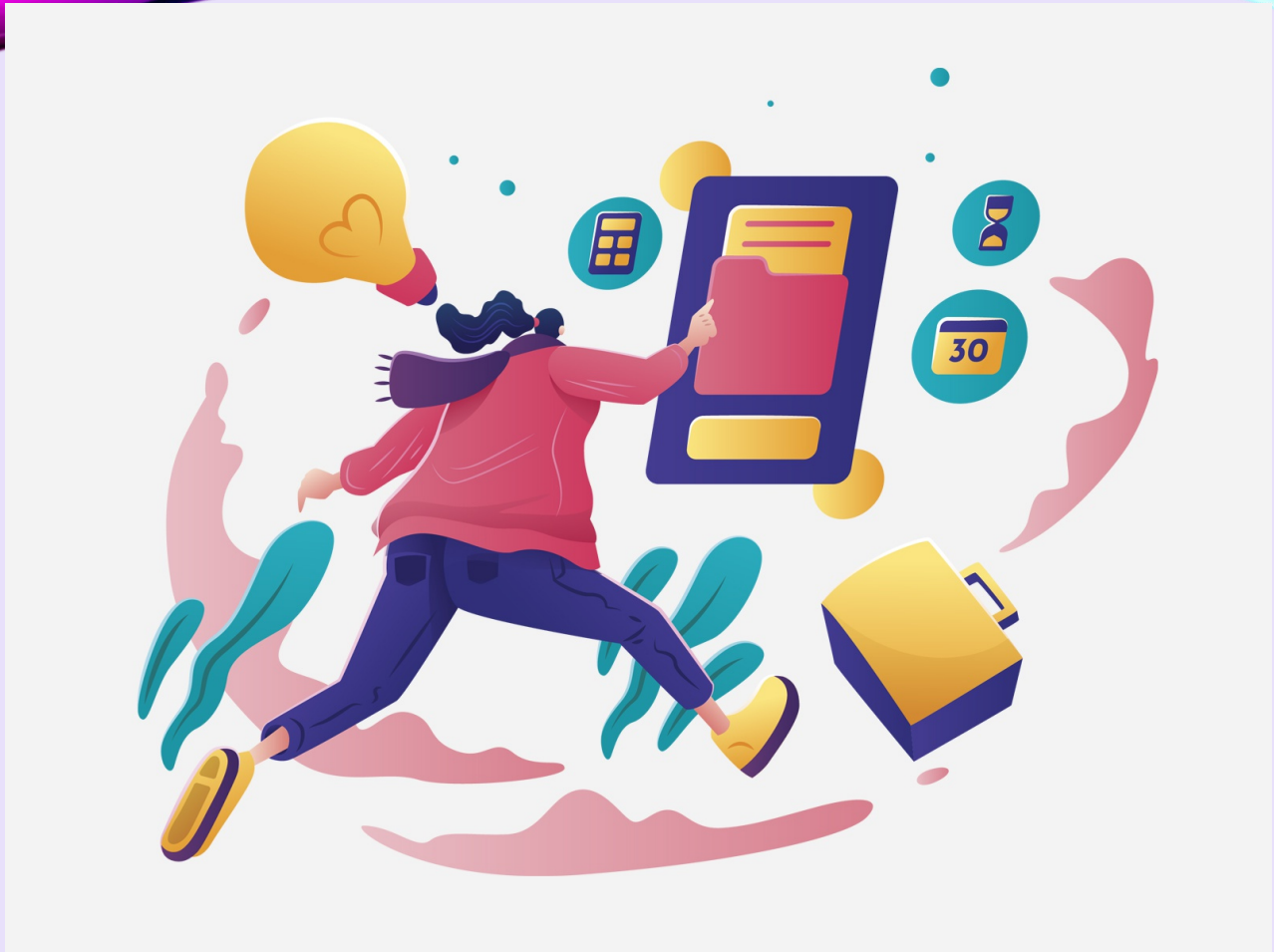
Sl.No	Priority <High / Medium / Low>	Size (Hours)	Sprint <#>	Status <Planned / In progress / Completed>	Release Date	Release Goal
1	High	6	1	Completed		Creation of player in first person perspective
2	High	6		Completed		Creation of enemy characters
3	High	4		Completed		Maps(Terrain, World)
4	High	6	2	Completed		World / Terrain design
5	High	2		Completed		Main mode (Scripting, UI)
6	Low	2		Incomplete		Time attack (Scripting, UI)
7	High	10	3	Completed		AI and Selectable weapons (Coding)
8	High	2	4	Completed		Difficulty levels
9	Low	2		Completed		Key Binding
10	High	10		Completed		Final UI

USER STORIES



User Story ID	As a type of User	I want to <perform some task>	So that I can < Achieve Some Goal>
1	Player	Control the main character	Move and interact in the game world
2		See the enemies	Destroy the enemies
3		See the world and terrain	Move around the world
4		Navigation	Know where to go next
5		See the UI for main mode	Play the main mode
6		See type of enemies and see different weapons	Use different weapons on different enemies
7		View key bindings	Know the gaming controls
8		See final UI	

PROJECT PLAN



User Story ID	Task Name	Start Date	End Date	Days	Status
SPRINT 1					
1	Player Character	30/11/2021	03/12/2021	4	Completed
2	Creation of enemy characters	04/12/2022	11/12/2022	8	Completed
3	World / Terrain design	12/12/2022	27/12/2022	6	Completed
4	Navigation pane	28/12/2022	29/01/2022	2	Completed

User Story ID	Task Name	Start Date	End Date	Days	Status
SPRINT 2					
5	Main mode (Scripting, UI)	31/01/2022	03/02/2022	4	Completed
6	AI and Selectable weapons (Coding)	04/02/2022	12/02/2022	8	Completed
7	Key Binding	13/02/2022	15/02/2022	3	Completed
8	Final UI	15/02/2022	16/02/2022	1	Completed

SPRINT BACKLOG

Backlog Item	Status & completion date	Original estimate in hours	Day 1	Day2	Day3	Day4	Day5	Day6	Day7	Day8	Day9	Day10	Day11	Day12	Day13	Day14
User story #1		hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs
Modelling (Player)	Completed	4	1	1	0	1	1	0	0	0	0	0	0	0	0	0
Script	Completed	2	0	0	0	0	0	1	0	1			0	0	0	0
Testing		Continuous	Yes													
User story #2	Completed															
Modelling (Enemies)	Completed	4	0		0	0	2	0	0	0	0	0	1	1	0	0
Script	Completed	2	0	0	0	0	0	1	0	0	0	0	1	0	0	0

Backlog Item	Status & completion date	Original estimate in hours	Day1	Day2	Day3	Day4	Day5	Day6	Day7	Day8	Day9	Day10	Day11	Day12	Day13	Day14
User story #3 Design (navigation)	Completed	4	1	1	1	1		0	0	0	0	0	0	0	0	0
User story #4 Design (World, terrain)	Completed	6	1	1	1	0	0	0	1	1	1	0	0	0	0	0
User story #5																
(UI, Scripting)	Completed	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Testing	Completed	Continuous														

Backlog Item	Status & completion date	Original estimate in hours	Day 1	Day2	Day3	Day4	Day5	Day6	Day7	Day8	Day9	Day10	Day11	Day12	Day13	Day14
User story #6		hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrsE
Enemy (Design &Script-AI)	Completed	2	0	0	0	0	0	1	0	1			0	0	0	0
Testing	Completed	Continuous	Yes													
User story #7																
Scripting	Completed	10	2	0	2	0	1	1	1	0	2	0	0	0	1	

Backlog Item	Status & completion date	Original estimate in hours	Day1	Day2	Day3	Day4	Day5	Day6	Day7	Day8	Day9	Day10	Day11	Day12	Day13	Day14
User story #8		hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs
Script(final UI)	Completed	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Testing	Completed	Continuous	Yes													
Final Test	Completed	1	0	0	0	0	0	0	0	0	0	0	0	1	1	

SPRINT 1 ACTUAL

Backlog Item	Status & completion date	Original estimate in hours	Day1	Day2	Day3	Day4	Day5	Day6	Day7	Day8	Day9	Day10	Day11	Day12	Day13	Day14
User story #1		hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs
Modelling (player)	Completed	1	1	1	1	2	0									
Script	Completed	2						1	0	1	1	2	0	0	0	0
Testing	Completed	Continuous	Yes													
User story #2																
Modelling (Enemies)	Completed	6											1	1		
Scripting (enemies)	Completed	4													0	2

Backlog Item	Status & completion date	Original estimate in hours	Day1	Day2	Day3	Day4	Day5	Day6	Day7	Day8	Day9	Day10	Day11	Day12	Day13	Day14
User story #3		hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs
Modelling (world, terrain, navigation)	Completed	7	1	1	1	2	0									
Script	Completed	3						1	0	1	1	2	0	0	0	0
Testing	Completed	Continuous	Yes													
User story #4																
Modelling (level Design)	Completed	3											1	1		
Scripting(pickups and rewards)	Completed	2													0	2

SPRINT 2 ACTUAL

Backlog Item	Status & completion date	Original estimate in hours	Day1	Day2	Day3	Day4	Day5	Day6	Day7	Day8	Day9	Day10	Day11	Day12	Day13	Day14
User story #5		hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs
Key binding (player)			1	1	1	2	0									
Script	Completed	3						1	0	1	1	2	0	0	0	0
Testing	Completed	Continuous								Yes						
User story #6																
AI (Enemies)	Completed	6											1	1		
Weapons (Scripting)	Completed	6													0	2

Backlog Item	Status & completion date	Original estimate in hours	Day1	Day2	Day3	Day4	Day5	Day6	Day7	Day8	Day9	Day10	Day11	Day12	Day13	Day14
User story #7		hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs
Final UI	2		1	1	1	2	0									
Final Testing	Completed	Continuous	Yes													

THANK YOU!